We claim:

1. A method for expressing nucleic acid sequences in prokaryotic host cells, where

   a) at least one DNA construct which is capable of episomal replication in said host cells and which comprises a nucleic acid sequence to be expressed under the transcriptional control of an L-rhamnose-inducible promoter, where said promoter is heterologous with regard to said nucleic acid sequence, is introduced into said host cells and

   b) prokaryotic host cells which comprise said DNA construct in episomal form are selected and

   c) the expression of said nucleic acid sequence is induced by addition of L-rhamnose to a culture of said selected host cells,

   wherein the prokaryotic host cell is at least deficient with regard to L-rhamnose isomerase.

2. The method according to claim 1, wherein the prokaryotic host cell is selected from the species of the family Enterobacteriaceae or the order Actinomycetales.

3. The method according to claim 1 or 2, wherein the prokaryotic host cell is Escherichia coli.

4. The method according to any of claims 1 to 3, wherein the L-rhamnose-inducible promoter is the $rhaP_{BAD}$ promoter from E. coli or a functional equivalent thereof or a functionally equivalent fragment of the above promoters.

5. A method according to any of claims 1 to 4, wherein the L-rhamnose-inducible promoter comprises at least one RhaS binding element as shown in SEQ ID NO: 5 or a functional equivalent thereof or a functionally equivalent fragment of the above elements.

6. A method according to any of claims 1 to 5, wherein the L-rhamnose-inducible promoter comprises at least one sequence described by SEQ ID NO: 1, 2, 3 or 4.

7. The method according to any of claims 1 to 6, wherein the L-rhamnose isomerase is described by the amino acid sequence as shown in SEQ ID NO: 9 or a functional equivalent thereof.

8. The method according to one of claims 1 to 7, wherein the DNA construct which is capable of episomal replication has a size of not more than 100 000 bases or base pairs.

9. The method according to any of claims 1 to 8, wherein the DNA construct which is capable of episomal replication is selected from the group consisting of circular plasmid vectors, phagemids and cosmids.

10. The method according to any of claims 1 to 9, wherein the prokaryotic host cell has at least one further deficiency with regard to a gene which has a function in the metabolization of rhamnose, where said gene encodes a protein selected from the group consisting of rhamnulose 1-phosphatase (RhaB) and rhamnulose-phosphate aldolase (RhaD).

11. The method according to any of claims 1 to 10, wherein the expression of the nucleic acid sequence to be expressed causes the production of a protein encoded by said nucleic acid sequence.

12. The method according to any of claims 1 to 11, wherein the nucleic acid sequence to be expressed encodes a recombinant protein selected from the group consisting of chymosines, proteases, polymerasen, saccharidases, dehydrogenases, nucleases, glucanases, glucose oxidases, α-amylases, oxidoreductases, peroxidases, laccases, xylanases, phytases, cellulases, collagenases, hemicellulases, lipases, lactases, pectinases, amyloglucosidases, glucoamylases, pullulanases, glucose isomerases, nitrilases, esterases, nitrile hydratases, amidases, oxygenases, oxynitrilases, lyases, lactonases, carboxylases, collagenases, cellulases, serum albumins, factor VII, factor VIII, factor IX, factor X, tissue plasminogen factors, protein C, von Willebrand factors, antithrombins, erythropoietins, colony-stimulating factors, cytokins, interleukins, insulins, integrins, addressins, selectins, antibodies, antibody fragments, structural proteins, collagen, fibroins, elastins, tubulins, actins, myosins, growth factors, cell-cycle proteins, vaccines, fibrinogens and thrombins.

13. A prokaryotic host cell which is at least deficient with regard to L-rhamnose isomerase and which comprises at least one DNA construct which is capable of replication in said host cell and which comprises a nucleic acid sequence to be expressed under the transcriptional control of an L-rhamnose-inducible promoter, where said promoter is heterologous with regard to said nucleic acid sequence.

14. The use of a prokaryotic host cell according to claim 13 for the production of foodstuffs, feedstuffs, enzymes, chemicals, pharmaceuticals or fine chemicals.

15. A method for the production of recombinant proteins, enzymes and fine chemicals using a prokaryotic host cell according to claim 13 or a preparations thereof.